Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-18. (Cancelled)

19. (Currently Amended) A process for analysing a sample or samples, the process comprising:

~~which comprises~~ bringing the sample into contact with ~~the~~ a first sensing area of a platform ~~according to claim 1~~, said platform comprising an optically transparent substrate having a refractive index n_1, a thin, optically transparent layer, formed on one surface of the substrate, said layer having a refractive index n_2 which is greater than n_1, said platform incorporating therein one or multiple corrugated structures comprising periodic grooves which define one or multiple sensing areas or regions, each for one or multiple capture elements, said grooves being so profiled, dimensioned and oriented that either

a) coherent light incident on said platform is diffracted into individual beams or diffraction orders which interfere resulting in reduction of the transmitted beam and an abnormal high reflection of the incident light thereby generating an enhanced evanescent field at the surface of the one or multiple sensing areas; or

b) coherent and linearly polarised light incident on said platform is diffracted into individual beams or diffraction orders which interfere resulting in almost total extinction of the transmitted beam and an abnormal high reflection of the incident light thereby generating an enhanced evanescent field at the surface of the one or multiple sensing areas;

irradiating the platform with a light beam such that evanescent resonance is caused to occur within the first sensing area of the platform and

detecting radiation emanating from the first sensing area.

20. (Currently Amended) A process ~~method~~ according to claim 19, including adding fluorescent inducing material to the samples under investigation and sensing fluorescence induced in said samples by excitation of the samples by the enhanced evanescent field.

21. (Original) A process according to claim 20 wherein the fluorescent inducing material comprises a luminescent marker.

22. (Original) A process according to claim 21, wherein the luminescent marker comprises luminescent compound or compounds having luminescence in the range of from 400 nn to 1200 nm which are functionalised or modified in order to be attached to one or more of the affinity partners, including derivatives of one or more of the following:

polyphenyl and heteroaromatic compounds
stilbenes,
coumarines,
xanthene dyes,
methine dyes,
oxazine dyes,
rhodamines,
fluoresceines,
coumarines, stilbenes,
pyrenes, perylenes,
cyanines, oxacyanines, phthalocyanines, porphyrines, naphthalopcyanines, azobenzene derivatives, distyryl biphenyls,
transition metal complexes e.g. polypyridyl/ruthenium complexes, tris(2,2'-bipyridyl)ruthenium chloride, tris(1,10-phenanthroline)rutheniu- m chloride, tris(4,7-diphenyl-1,10-phenanthroline) ruthenium chloride and polypyridyl/phenazine/ruthenium complexes, such as octaethyl-platinum-porphyrin, Europium and Terbium complexes quantum dot particles/beads or derivatives thereof.

23. (Original) A process as claimed in claim 19 wherein the light beam is configured so as to give rise to TM excitation.

24. (Original) A process according to claim 19 wherein the light beam is incident onto the substrate side of the platform.

25. (Original) A process according to claim 19 wherein the light beam is incident onto the corrugated high refractive index side of the platform.

26. (Cancelled)

27. (Original) A process according to claim 23 wherein the light beam is incident onto the substrate side of the platform.

28. (Original) A process according to claim 23 wherein the light beam is incident onto the corrugated high refractive index side of the platform.

29. (Canceled)

30. (New) The process of claim 19, wherein the enhanced evanescent field interacts with luminescent material on or in the vicinity of the first sensing area so as to produce a detectable luminescent signal, and wherein detecting radiation includes detecting the luminescent signal.

31. (New) A method of analysing a sample, the method comprising:

bringing the sample into contact with a first sensing area of a platform, said platform comprising an optically transparent substrate having a refractive index n_1, a thin, optically transparent layer, formed on one surface of the substrate, said layer having a refractive index n_2 which is greater than n_1, said platform incorporating therein one or multiple corrugated structures comprising periodic grooves which define one or multiple sensing areas, each for one or multiple capture elements, said grooves being so profiled, dimensioned and oriented that either

a) coherent light incident on said platform is diffracted into individual beams or diffraction

orders which interfere resulting in reduction of the transmitted beam and an abnormal high reflection of the incident light thereby generating an enhanced evanescent field at the surface of the one or multiple sensing areas; or

b) coherent and linearly polarised light incident on said platform is diffracted into individual beams or diffraction orders which interfere resulting in a substantially total extinction of the transmitted beam and an abnormal high reflection of the incident light thereby generating an enhanced evanescent field at the surface of the one or multiple sensing areas;

irradiating the platform with a light beam such that evanescent resonance is caused to occur within the first sensing area of the platform and

detecting radiation emanating from the first sensing area.

32. (New) The method of claim 31, wherein the light beam is incident onto the substrate side of the platform.

33. (New) The method of claim 31, wherein the light beam is incident onto the corrugated high refractive index side of the platform.

34. (New) The method of claim 31, wherein the light beam is configured so as to give rise to TM excitation.

35. (New) A method according to claim 31, including adding fluorescent inducing material to the sample, and wherein detecting includes sensing fluorescence induced in said sample by excitation of the sample by the enhanced evanescent field.

36. (New) The method of claim 31, wherein the enhanced evanescent field interacts with luminescent material on or in the vicinity of the first sensing area so as to produce a detectable luminescent signal, and wherein detecting radiation includes detecting the luminescent signal.